

ISO REPORT

**PREPARED BY
Battalion Chief Thomas Harrell
December 15, 2003**

1988 ISO

CLASSIFICATION DETAILS

&

IMPROVEMENT STATEMENTS



INSURANCE SERVICES OFFICE, INC.

48 Eves Drive, Suite 200, Marlton, New Jersey 08053 (856) 985-5600, FAX (856) 985-6491

December 1, 2003

Battalion Chief Thomas Harrell
Alexandria Fire Dept.
900 Second St.
Alexandria, VA 22314-1395

RE: Alexandria, VA

Dear Chief Harrell,

We here at Insurance Services Office would like to thank you for the request that we received on November 24, 2003 for information regarding Alexandria, VA.

We are enclosing Classification Details and Improvement Statements in response to your recent request. These details and statements cover the items which are reviewed in our Fire Suppression Rating Schedule, and which are of importance in determining your public protection classification.

These Classification Details and Improvement Statements were developed using the information obtained during our survey and consider that conditions remain the same. They refer only to the public protection classification and are not for property loss prevention or life safety purposes.

The classification applies to properties with a needed fire flow of 3,500 gpm or less. The private and public protection at properties with larger needed fire flows are individually evaluated, and may vary from the classification.

If you have any questions, please feel free to contact me. I would be more than happy to assist you in any way I can.

Sincerely yours,

Kevin Gimeno

Kevin Gimeno
Community Mitigation Analyst
Tel. 856-985-5600 ext. 430
Fax 856-985-2511
E-mail kgimeno@iso.com

Grading Sheet For: Alexandria, VA
County

Public Protection Class: 3

Surveyed: September, 1988

<u>Feature</u>	<u>Credit Assigned</u>	<u>Maximum Credit</u>
Receiving and Handling Fire Alarms	5.75%	10.00%
Fire Department	36.93%	50.00%
Water Supply	36.36%	40.00%
*Divergence	-3.41%	
Total Credit	<hr/> 75.63%	<hr/> 100.00%

The Public Protection Class is based on the total percentage credit as follows:

<u>Class</u>	<u>%</u>
1	90.00 or more
2	80.00 to 89.99
3	70.00 to 79.99
4	60.00 to 69.99
5	50.00 to 59.99
6	40.00 to 49.99
7	30.00 to 39.99
8	20.00 to 29.99
9	10.00 to 19.99
10	0 to 9.99

*Divergence is a reduction in credit to reflect a difference in the relative credits for Fire Department and Water Supply.

*The above Classification has been developed for fire insurance rating purposes only.

INSURANCE SERVICES OFFICE, INC.

CLASSIFICATION DETAILS

Graded Area: Alexandria

County: 0

State: VA

Date Surveyed: September, 1988

Total Credit: 75.63 Class: 3

Pop.: 109000

RECEIVING AND HANDLING FIRE ALARMS

This section of the Fire Suppression Rating Schedule reviews the facilities provided for the general public to report fires, and for the operator on duty at the communication center to dispatch fire department companies to the fires.

	<u>Actual</u>	<u>Credit</u> <u>Maximum</u>
1. Credit for Telephone Service (Item 414)		
This item reviews the facilities provided for the public to report fires, including the listing of fire and business numbers in the telephone directory.	1.50	2.00
2. Credit for Operators (Item 422)		
This item reviews the number of operators on-duty at the communication center to handle fire calls.	1.50	3.00
3. Credit for Dispatch Circuits (Item 432)		
This item reviews the dispatch circuit facilities used to transmit alarms to fire department members.	2.75	5.00
4. Total Credit for Receiving and Handling Fire Alarms:	5.75	10.00
Relative Classification for Receiving and Handling Fire Alarms:	5	

CLASSIFICATION DETAILS

Graded Area: Alexandria

County: 0

State: VA

Date Surveyed: September, 1988

Total Credit: 75.63 Class: 3

Pop.: 109000

FIRE DEPARTMENT

This section of the Fire Suppression Rating Schedule reviews the engine and ladder-service companies, equipment carried, response to fires, training and available fire fighters.

	<u>Actual</u>	<u>Credit</u> <u>Maximum</u>
1. Credit for Engine Companies (Item 513)		
This item reviews the number of engine companies and the hose equipment carried.	8.92	10.00
2. Credit for Reserve Pumpers (Item 523)		
This item reviews the number of reserve pumpers, their pump capacity and the hose equipment carried on each.	0.85	1.00
3. Credit for Pump Capacity (Item 532)		
This item reviews the total available pump capacity.	5.00	5.00
4. Credit for Ladder-Service Companies (Item 549)		
This item reviews the number of ladder and service companies and the equipment carried.	4.59	5.00
5. Credit for Reserve Ladder-Service Companies (Item 553)		
This item reviews the number of reserve ladder and service trucks, and the equipment carried.	0.84	1.00

CLASSIFICATION DETAILS

Graded Area: Alexandria

County: 0

State: VA

Date Surveyed: September, 1988

Total Credit: 75.63 Class: 3

Pop.: 109000

FIRE DEPARTMENT

(continued)

	<u>Actual</u>	<u>Credit</u> <u>Maximum</u>
6. Credit for Distribution (Item 561)		
This item reviews the percent of the built-upon area of the city which has an adequately-equipped, responding first-due engine company within 1.5 miles and an adequately-equipped, responding ladder-service company within 2.5 miles.	3.48	4.00
7. Credit for Company Personnel (Item 571)		
This item reviews the average number of equivalent fire fighters and company officers on duty with existing companies.	8.30	15.00+
8. Credit for Training (Item 581)		
This item reviews the training facilities and their use.	4.95	9.00
9. Total Credit for Fire Department:	36.93	50.00+
Relative Classification for Fire Department:	3	

+ This indicates that credit for manning is open-ended, with no maximum credit for this item.

ISO COMMERCIAL RISK SERVICES, INC.
HYDRANT FLOW DATA SUMMARY

CITY ALEXANDRIA STATE VIRGINIA ZIP _____ WITNESSED BY JERRY D. VANCE DATE SEPTEMBER 1988

TEST NO.	TYPE	DIST.*	TEST LOCATION	SERVICE	FLOW-GPM		PRESSURE		FLOW AT 20 PSI	REMARKS	
					INDIVIDUAL HYDRANTS	TOTAL	PSI	STATIC/RESID. **			
1	COMM.		Seminary Rd and Dawes Ave	AHS	1890	770	2660	58	35	3000	3500
2	COMM.		King St and Beauregard St	AHS	1280	2060	3340	104	82	3000	6900
3	COMM.		Park Center Dr and Ford Ave.	AHS	1890		1890	88	70	3500	3900
4	COMM.		Nottingham Dr and Seminary Rd	AHS	1280		1340	2620	60	50	3500
5	COMM.		Rayburn Ave 200' West of Beauregard	AHS	1800		1710	3510	66	56	4500
6	COMM.		Sanger Ave 150' North of Derby Ct	AHS	1610		1610	102	84	2500	3700
7	COMM.		Seminary Rd and Kenmore Ave	AHS	1610	1400	670	3680	60	50	3500
8	COMM.		Howard St 200' North of Ormond	AHS	1280	1150	860	3290	58	38	4000
9	RES.		Polk Ave and Pickett St	JPHS	1280	1150		2430	80	52	1000
10	COMM.		Stevenson 200' West of Yoakum Pkwy	AHS	1710	1000	1760	4470	78	64	3000
11	COMM.		Walker St 100' South of Duke St	AHS	1610	1280		2890	68	60	1750
12	COMM.		Pickett St 400' East of Burnside Pl.	AHS	1510	1510		3020	129	104	3500
13	COMM.		Pickett St and Edsall Rd	AHS	1280	1510	1000	3790	124	104	3500
14	COMM.		Eisenhower Ave and Claremont	AHS	1280			1280	140	110	3500
15	COMM.		Duke St & Jordan St.	JPHS	1280			1280	104	90	1750

THE ABOVE LISTED NEEDED FIRE FLOWS ARE FOR INSURANCE RATING PURPOSES ONLY AND ARE NOT INTENDED TO PREDICT THE MAXIMUM AMOUNT OF WATER REQUIRED FOR A LARGE SCALE FIRE CONDITION. THE AVAILABLE FLOWS ONLY INDICATE THE CONDITIONS THAT EXISTED AT THE TIME AND AT THE LOCATION WHERE TESTS WERE WITNESSED.
*COMM = Commercial; RES = RESIDENTIAL
**Needed is the rate of flow for a specific duration for a full credit condition. Needed Fire Flows greater than 3,500 gpm are not considered in determining the classification of the city when using the Fire Suppression Rating Schedule.

ISO COMMERCIAL RISK SERVICES, INC.
HYDRANT FLOW DATA SUMMARY

CITY ALEXANDRIA STATE VIRGINIA ZIP _____ WITNESSED BY JERRY D. VANCE DATE SEPTEMBER 1988

TEST NO.	TYPE	DIST.*	TEST LOCATION	SERVICE	INDIVIDUAL HYDRANTS	TOTAL	STATIC PRESSURE PSI	RESID.	FLOW - GPM	AT 20 PSI	REMARKS
16	COMM.		Gordon St and Wheeler Ave	JPHS	11150	11150	118	98		3500	2700
17	COMM.		Duke St & Gordon St.	JPHS	1280	2560	96	70		2250	4600
18	COMM.		Wheeler Ave and Floyd St	JPHS	1280	1280	114	90		2250	2700
19	COMM.		Off Braddock Rd NE Corner of the								
			Episcopal School Gym	AHS	1000	1000	60	38		2500	1400
20	RES.		Dartmouth Rd and Cambridge Rd	JPHS	820	1880	70	48		1000	2900
20A	COMM.		Dartmouth Rd and Cambridge Rd	JPHS	820	1880	70	48		3000	2900
21	COMM.		King St 600' NW of Quaker Lane	AHS	11150	3800	80	60		2250	6900
21A	COMM.		King St 600' NW of Quaker Lane	AHS	11150	3800	80	60		4000	6900
22	RES.		Summitt Ave and Central Ave	JPHS	630	630	45	32		1000	900
23	COMM.		Mt. Vernon Ave and Randolph Ave	MS	940	1800	48	30		3500	2300
24	COMM.		Mt. Vernon Ave and Reed Ave	MS	770	1660	54	34		2250	3200
25	COMM.		Jefferson Davis Hwy and Swann Ave	MS	1280	2990	40	30		3000	4300
26	RES.		King St and Melrose St	JPHS	670	2680	64	48		1000	4600

THE ABOVE LISTED NEEDED FIRE FLOWS ARE FOR INSURANCE RATING PURPOSES ONLY AND ARE NOT INTENDED TO PREDICT THE MAXIMUM AMOUNT OF WATER REQUIRED FOR A LARGE SCALE FIRE CONDITION. THE AVAILABLE FLOWS ONLY INDICATE CONDITIONS THAT EXISTED AT THE TIME AND AT THE LOCATION WHERE TESTS WERE WITNESSED.
*COMM = Commercial; RES = RESIDENTIAL
**Needed is the rate of flow for a specific duration for a full credit condition. Needed Fire Flows greater than 3,500 gpm are not considered in determining the classification of the city when using the Fire Suppression Rating Schedule.

PUBLIC PROTECTION CLASSIFICATIONS

IMPROVEMENT STATEMENTS FOR ALEXANDRIA VIRGINIA

Prepared by

**INSURANCE SERVICES OFFICE, INC.
4B Eves Drive, Suite 200, Marlton, NJ 08053
856-985-5600 FAX 800-955-2422**

The following statements are based upon the criteria contained in our Fire Suppression Rating Schedule and upon conditions in Alexandria, VA in September 1988. They indicate the performance needed to receive full credit for the specific item in the Schedule, and the quantity you have provided. Partial improvement will result in receiving a partial increase in the credit. These statements relate only to the fire insurance classification of your city. They are not for property loss prevention or life safety purposes and no life safety or property loss prevention recommendations are made.

RECEIVING AND HANDLING FIRE ALARMS

Credit For Telephone Service (Item 414).

Actual = 1.50%; Maximum = 2.00%

For maximum credit in the Schedule, there should be 4 incoming telephone lines reserved for receiving notification of fires and other emergencies. You have 3 lines.

For maximum credit in the Schedule, emergency calls should progress to the business number.

For maximum credit in the Schedule, both the number to report a fire and the fire department business number should be listed under "Fire Department" in the white pages directory. Your fire number is listed but your business number is not listed under "Fire Department".

Credit For Operators (Item 422).

Actual = 1.50%; Maximum = 3.00%

For maximum credit in the Schedule, 5 operators are needed on duty at all times. You have and average of 2.5 operators on duty.

Credit For Dispatch Circuits (Item 432).

Actual = 2.75%; Maximum = 5.00%

For maximum credit in the Schedule, the radio alarm dispatch circuit should be monitored for integrity in accordance with National Fire Protection Association Standard 1221.

For maximum credit in the Schedule, the alarm dispatch circuits should have an emergency power supply in accordance with National Fire Protection Association Standard, 1221.

Total Credit for Receiving and Handling Fire Alarms (Item 440)

Actual = 5.75%; Maximum = 10.00%

FIRE DEPARTMENT

Credit For Engine Companies (Item 513).

Actual = 8.92%; Maximum = 10.00%

For maximum credit in the Schedule, 8 engine companies are needed in your city.
These are calculated as follows:

3 for the Basic Fire Flow of 3500 gpm.

5 additional for the size of the area served and the method of operation.

You have 8 engine companies in service.
These are calculated as follows:

90 percent for Engine 51 because of insufficient equipment.

85 percent for Engine 52 because of insufficient equipment.

97 percent for Engine 53 because of insufficient equipment.

90 percent for Engine 54 because of insufficient equipment.

80 percent for Engine 55 because of insufficient equipment.

89 percent for Engine 56 because of insufficient equipment.

97 percent for Engine 57 because of insufficient equipment.

86 percent for Engine 58 because of insufficient equipment.

Credit For Reserve Pumpers (Item 523).

Actual = 0.85%; Maximum = 1.00%

For maximum credit in the Schedule, 1 fully-equipped reserve pumper is needed. You have 1 reserve pumper.

This is calculated as follows:

60 percent for Engine RE5 because of insufficient equipment..

Credit For Ladder Service (Item 549).

Actual = 4.59%; Maximum = 5.00%

For maximum credit in the Schedule, 3 ladder companies are needed in your city.

These are calculated as follows:

3 ladder companies due to the size of the area served.

You have 3 ladder companies.

These are calculated as follows:

89 percent for Ladder T-53 because of insufficient equipment.

91 percent for Ladder T-55 because of insufficient equipment.

95 percent for Ladder T-58 because of insufficient equipment.

Credit For Reserve Ladder Service (Item 553).

Actual = 0.84%; Maximum = 1.00%

For maximum credit in the Schedule, 1 fully-equipped reserve ladder truck is needed. You have 1 reserve ladder truck.

This is calculated as follows:

73 percent for Truck RT-1 because of insufficient equipment.

ISO

**INDEPENDENT STUDY
&
IMPROVEMENT
RECOMMENDATIONS**

City of Alexandria Fire Department Training Division

MEMORANDUM

DATE: December 15, 2003

TO: James Gower, Deputy Chief

FROM: Thomas Harrell, Training Officer

SUBJECT: ISO Study For The City of Alexandria

Recently, I met with Glen Stanley concerning the City's current ISO (Insurance Services Office) standing. Mr. Stanley met with several divisions and supervisors to determine what rating the City of Alexandria would receive currently and how to improve our score to receive a better rating. The last ISO review was held in October of 1988 and under normal circumstances, reviews should be repeated every ten years. I will begin with a brief description on how ISO rates fire departments before explaining where we score on their chart.

ISO places individual fire departments into one of ten classes depending on how many points they score. The following table shows the points and the corresponding classification:

Class	Points
1	90.00 or more
2	80.00 to 89.99
3	70.00 to 79.99
4	60.00 to 69.99
5	50.00 to 59.99
6	40.00 to 49.99
7	30.00 to 39.99
8	20.00 to 29.99
9	10.00 to 19.99
10	0.00 to 9.99

The following explains what ISO evaluates and the relative weights:

Receiving and Handling of Fire Alarms

1. Receipt of fire alarms by commercial telephone—ISO compares the number of telephone lines provided with the number of telephone lines needed for emergencies and business calls. The number of lines needed depends on the population served by the communications center. ISO also evaluates directory listings. 2%
2. Operators—ISO compares the number of fire alarm operators provided with the number of operators needed. The number of needed operators depends on the number of alarms received and also on whether the community is meeting its performance standard for receiving and dispatching alarms. 3%
3. Alarm dispatch circuits—All fire departments need adequate means of notifying personnel of fire locations. ISO evaluates the type and arrangement of those facilities. 5%

Receiving and Handling Fire Alarms Total: 10%

Fire Department

4. Pumpers—ISO compares the number of in-service pumpers and the equipment carried with the number of needed pumpers and the equipment identified in the Fire Suppression Rating Schedule (or equivalency list). The number of needed pumpers depends on the size of the response district and also on the Basic Fire Flow. 10%
5. Reserve Pumpers—ISO evaluates the adequacy of the pumpers and their components with one (or more in larger communities) pumper out of service. 1%
6. Pump Capacity—ISO compares the pump capacity of the in-service pumpers (and pumps on other apparatus) with the Basic Fire Flow. ISO considers a maximum Basic Fire Flow of 3,500 gallons per minute. 5%
7. Ladder Service—Communities use ladders, tools, and equipment normally carried on ladder trucks for ladder operations as well as for forcible entry, ventilation, salvage and overhaul. The number and type of apparatus depend on the height of the buildings, needed fire flow, and response distance. 5%
8. Reserve Ladder Service—ISO compares the adequacy of ladder apparatus when one (or more in larger communities) apparatus is out of service. 1%
9. Distribution of companies—ISO credits the percentage of the community within specified response distances of pumpers (1 ½ miles) and ladder apparatus (2 ½ miles). 4%

10. Company personnel—ISO credits the personnel available for first alarms of fire. For personnel not normally in the fire station (i.e. volunteers), ISO reduces the value of the responding members to reflect the delay due to decisions, communication, or assembly.

15%

11. Training—Trained personnel are vital to a competent fire suppression force. ISO evaluates training facilities and their productivity; training at fire stations; training of fire officers, drivers, and recruits; building familiarization and pre-fire planning inspections.

9%

Fire Department Total:

50%

Water Supply

12. Adequacy of water supply—ISO compares the available water supply at representative community locations with the needed fire flows for those locations. The supply works, the distribution system, or fire-hydrant distribution may limit the available supply.

35%

13. Hydrants: size, type and installation—ISO evaluates the design capacity of fire hydrants.

2%

14. Hydrants: inspection, and condition—ISO evaluates the frequency of fire-hydrant inspection, the completeness of the inspections, and the condition of hydrants.

3%

Water Supply Total:

40%

Divergence

15. Divergence—An inadequate water supply may limit the ability of even the best fire department to suppress fires. Similarly, an inadequate fire department may not be able to make effective use of an abundant water supply. If the quality of the fire department and the water supply are different, ISO adjusts the total score downward to reflect the limiting effect of the less adequate item on the better one.

Survey Total:

100%

RECEIVING AND HANDLING FIRE ALARMS
SUMMARY OF CREDIT

	<u>Credit</u>	
	Estimated	Maximum
1. <u>Receipt of Fire Alarms By Commercial Telephone</u>	<u>1.82</u>	<u>2.00</u>
This item reviews the facilities provided for the public to report fires, including listing of fire and business numbers in the telephone directory.		
<u>Deficiencies</u>		
<ul style="list-style-type: none"> Both the number to report a fire and the fire department business number should be listed under "Fire Department" in the white pages. Both the number to report a fire and the fire department business number should be listed under the name of the city in the white or blue pages. Automatic telephone dialing equipment used to report alarms from private fire detection systems should have an emergency line separate from the normal fire and business numbers. 		
2. <u>Operators</u>	<u>1.80</u>	<u>3.00</u>
This item reviews the number of operators on-duty at the Fire Department Communications Center to handle fire calls. The number of operators on duty to handle fire calls should be in accordance with NFPA Standard 1221.		
<u>Deficiencies</u>		
<ul style="list-style-type: none"> With the current call volume, ISO recommends five (5) operators for our Communications Center. We currently have three (3) operators, which allows us 1.8 points. Increasing our staffing to four (4) operators allows us 2.4 points and increasing our staffing to five (5) operators allows us 3.0 points. ISO could grant additional/unspecified credit deriving from the 911 call takers at the Public Safety Answering Point. 		
3. <u>Alarm Dispatch Circuits</u>	<u>2.75</u>	<u>5.00</u>
This item reviews the dispatch circuit facilities used to transmit alarms to fire department members in accordance with NFPA Standard 1221.		

Deficiencies

- For maximum credit in the Schedule, there should be two (2) alarm dispatch circuits provided and used for each fire station. We currently have only one (1). The radio alarm dispatch circuit should be supervised by providing duplicate base transmitters, microphones and antennas. Single wired circuits used to connect the base radio transmitters with remote control units shall be supervised.
- For maximum credit in the Schedule, the alarm dispatch circuits should have an emergency power supply in accordance with the National Fire Protection Association Standard 1221.

Total Credit For Receiving and Handling Fire Alarms

6.37

10.00

FIRE DEPARTMENT
SUMMARY OF CREDIT

1. Credit For Engine Companies

7.22

10.00

This item reviews the number of engine companies, the amount and type of fire hose, and amount and type of specialized equipment carried on each engine company. ISO requires the City to have eight (8) engine companies calculated as follows: three (3) for basic fire flow of 3,500 gallons and five (5) additional for the size of the area served and method of operation. We currently have eight (8) engine companies in the City of Alexandria.

Deficiencies

- Pumper Service Tests shall be performed in accordance with NFPA Standard 1901 and test records for all engines (including reserve apparatus) shall be available for inspection. To receive maximum credit, pump tests shall be performed annually and ISO will review the three (3) most recent tests for each apparatus.
- The credit for responding automatic-aid companies is dependent upon the value of the automatic-aid arrangements. We currently use automatic mutual aid with Fairfax County and Arlington County. If we get total credit for our automatic-aid, our total score for this category will be reduced by another 10% since the maximum credit awarded is 90%.

- ISO recommends specialized equipment be carried on all engines including reserve engines. Some equipment recommended by ISO is not currently in use by our department. A needs assessment by our Equipment Committee can help determine what equipment should be purchased before being rated.

2. Credit For Reserve Engines.

63

1.00

This item reviews the number of reserve engines and the equipment carried on each. ISO requires one (1) reserve engine for every eight (8) needed engine companies. We have the required reserve engines.

Deficiencies

- Pumper Service Tests shall be performed in accordance with NFPA Standard 1901 and test records for all engines shall be available for inspection. To receive maximum credit, pump tests shall be performed annually and ISO will review the three (3) most recent tests.
- Hose tests shall be performed in accordance with NFPA Standard 1962 to receive maximum credit. Hose test shall be conducted annually and ISO will review the three (3) most recent tests.
- ISO recommends the same specialized equipment carried on all engines. To get maximum credit, the reserve engines must be equipped with all equipment including portable radios.

3. Credit For Pump Capacity

5.00

5.00

This item reviews the total pump capacity of all engines including reserve engines. All engines will receive maximum credit with pump test documentation.

4. Credit For Ladder Service

4.46

5.00

This item reviews the number of ladder companies and the equipment carried. For maximum credit in the Schedule, three (3) ladder companies are needed in The City of Alexandria and we currently have three (3).

Deficiencies

- Ladder Service Tests shall be performed in accordance with NFPA Standard 1914 and test records for all ladder trucks shall be available for inspection. To receive maximum credit, ladder tests shall be performed annually and ISO will review the three (3) most recent tests for each apparatus. After ladder testing, copies of repair invoices and certifications should be included with the test documentation.

- The credit for responding automatic-aid companies is dependent upon the value of the automatic-aid arrangements. We currently use automatic mutual aid with Fairfax County and Arlington County. If we get total credit for our automatic-aid, our total score for this category will be reduced by another 10% since the maximum credit awarded is 90%.
- ISO recommends specialized equipment be carried on all trucks including reserve trucks. Some equipment recommended by ISO is not currently in use by our department. A needs assessment by our Equipment Committee can help determine what equipment should be purchased before being rated. Some of the less expensive equipment is currently being purchased.

5. <u>Credit For Reserve Ladder Service</u>	<u>0.59</u>	<u>1.00</u>
This item reviews the number of reserve ladder trucks and the equipment carried. ISO requires we maintain one (1) reserve truck and we currently have one (1) reserve truck.		

Deficiencies

- Ladder Service Tests shall be performed in accordance with NFPA Standard 1914 and test records for all ladder trucks shall be available for inspection. To receive maximum credit, ladder tests shall be performed annually and ISO will review the three (3) most recent tests for each apparatus. After ladder testing, copies of repair invoices and certifications should be included with the test documentation.
- ISO recommends the same specialized equipment carried on ladder trucks be carried on reserve trucks. To get maximum credit, the reserve trucks must be equipped with all equipment including portable radios.

6. <u>Credit For Distribution</u>	<u>3.09</u>	<u>4.00</u>
For maximum credit all built-upon areas in the City should be within 1½ miles of an adequately equipped engine company and within 2½ miles of an adequately equipped ladder truck.		

Deficiencies

- ISO recommends specialized equipment be carried on all engines, ladder trucks, and reserve apparatus. Some equipment recommended by ISO is not currently in use by our department. Points will increase in this area as equipment is added.

	<u>Credit</u>	
	Estimated	Maximum
7. <u>Credit For Company Personnel</u>	8.41	15.00

This item reviews the average number of equivalent firefighters and company officers on duty with existing companies. The total number of members on duty with companies shall be taken as a yearly average considering vacations, sick leave and other absences.

Deficiencies

- Our current minimum staffing for each engine and truck company is three (3) firefighters. An addition of one (1) firefighter per shift will increase our score by 0.22. Going from a minimum staffing of three (3) firefighters per company to four (4) would increase our score approximately 2.42 points.

8. <u>Credit For Training</u>	3.51	9.00
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This item reviews the training facilities and their use. Facilities and training aides account for 1/3 of the points awarded for training and credit is given if the following are a part of the Training Academy: drill tower, fire building (including smoke room), library and training manuals, slide and movie projectors, pump and hydrant cutaways, and a total training area of two (2) acres. Drills account for 1/2 of the points awarded for training which include: company training, classes for officers, driver and operator training, driver and operator training, hazardous materials training, and recruit firefighter training. Pre-fire planning accounts for 1/6 of the points awarded for training.

Pre-fire planning inspections of each commercial, industrial, institutional and other similar type building should be made twice a year for maximum credit. Records of inspections should include complete and up-to-date notes and sketches.

Total Credit For Fire Department	<u>32.91</u>	<u>50.00</u>
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WATER SUPPLY
SUMMARY OF CREDIT

		<u>Credit</u>	
		Estimated	Maximum
1. <u>Credit For Water Supply</u>			
This item reviews the supply works, the main capacity and hydrant distribution.		33.25	35.00
2. <u>Credit For Fire Hydrants</u>			
This item reviews the type of hydrants and method of installation.		2.00	2.00
3. <u>Credit For Inspection & Condition of Hydrants</u>			
This item reviews the frequency of inspections of hydrants and their condition.		2.28	3.00
<u>Deficiencies</u>			
<ul style="list-style-type: none"> • There are approximately 500 private hydrants throughout the City Of Alexandria that are not being inspected on a regular basis. These hydrants need to be identified and a program developed to routinely inspect these hydrants. • Records of hydrant maintenance and inspection must be maintained. 			
Total Credit For Water Supply		<u>37.53</u>	<u>40.00</u>

TOTAL SUMMARY OF CREDIT

	Estimated	Maximum
Receiving and Handling Fire Alarms.....	6.37	10.00
Fire Department.....	32.91	50.00
Water Supply.....	36.39	40.00
* Divergence.....	- 5.60	
	<u>71.21%</u>	<u>100.00%</u>

*Divergence is a reduction in credit to reflect the difference in points between the Fire Department score and Water Supply score. As we gain points in the Fire Department section of the Rating Schedule, our reduction taken for divergence will be reduced at the same time. For every point we gain on the Fire Department score, we also gain .4 of a point on divergence.

We currently would receive a rating as a low Class 3 Fire Department with a total score of 71.21 out of a possible 100 points. There are several areas we as a Fire Department can improve, and with improvements in Fire Communications and Suppression, we could achieve a Class 2 rating within the next two years.

Several resource material experts were interviewed during the evaluation. These experts were selected because of their expertise and because they will be the responsible parties for improving our performance. I have listed these experts and their respective roles in preparing for our next ISO inspection.

<u>Name</u>	<u>Title</u>	<u>Role</u>
Randal Browning	Communications Supervisor	Radio & Telephone Communications
James Grant	Communication Network Engineer	Maps & GIS
Michael Cross	Training Officer (Lieutenant)	Training (Facilities and Curriculum)
Joseph Saputo	Maintenance Supervisor	Pump & Ladder Testing
Christopher Leischner	Administrative Chief	Apparatus (Equipment & Testing)
Roy Worrell	Maintenance Supervisor (T&ES)	Hydrant Maintenance
William Walsh	Virginia –American Water (Manager)	Water Distribution & Supply
Michael Zuidema	ITS Coordinator	Pre-Fire Planning

**ISO
TRAINING REQUIREMENTS**

&


**SUPPRESSION
TRAINING OBJECTIVES**

City of Alexandria, Virginia

MEMORANDUM

DATE: DECEMBER 8, 2003

TO: JAMES T. GOWER, DEUPTY CHIEF, FIRE OPERATIONS

THROUGH: THOMAS A. HARRELL, BATTALION CHIEF, TRAINING OFFICER 

FROM: MICHAEL A. CROSS, LIEUTENANT, ASSISTANT TRAINING OFFICER

SUBJECT: SUPPRESSION IN-SERVICE TRAINING OBJECTIVES

A consultant recently evaluated the Fire Department to the Insurance Services Office (ISO) rating schedule to determine where the Department stands should ISO rate the Department, and make recommendations for improvements the Department can implement to improve the Department's rating for a future ISO evaluation. The evaluation identified various improvements the Fire Department needs in usage of the Training Academy and company level drills.

ISSUE

The current training objective for fire suppression companies to conduct an average of twenty hours of training/drill a month does not meet the ISO standard for in-service training. Further review of departmental training also shows that annual refresher training required by various OHSA standards is not being conducted.

DISCUSSION

The current departmental training objectives are based on each company (unit/shift) averaging twenty hours of training/drill each month. After an ISO rating in 1988, additional requirements were established to include each company participating in two multi-company night burns per year and each engine company documenting four pump drills per year. The training objectives were modified in 1994 with the implementation of Station Management Plans to require each company average twenty hours of training/drill and attend two night burn evolutions.

The consultant explained that ISO reviews in-service training records based on the individual employee instead of companies. According to ISO, each suppression employee that regularly responds to the first alarm of a building fire needs to meet the training requirements of ISO, which includes the ranks of Firefighter through Battalion Chief. The only training that ISO reviews for compliance to training standards is fire and rescue training. All other training, including EMS training, is not considered by ISO.

During an ISO examination, the reviewer will ask for departmental averages of training in various areas to evaluate the department's training level. The reviewer will examine a sampling of Firefighter's and Officer's training records to verify the individuals have actually met the objectives, and the reviewer will examine a sampling of drill reports and attendance records to verify the individuals actually attended the training session. Each level of review validates the overall departmental training averages used by ISO to

determine the rating. Incomplete records are treated as if the records do not exist, resulting in reducing the awarded points.

The training requirements established by ISO focus on several areas, including training using the Training Academy facilities, company level training, officer training, driver/operator training, and hazardous materials training. The following are specific ISO training requirements for every fire suppression employee that responds to a first alarm fire call:

Training using the Fire Training Academy Facilities

- 8 – ½ day drills per year (or a total of 24 hours per year).
- 4 – ½ day multi-company drills per year (or a total of 12 hours per year).
- 2 – 3 hours nighttime drills per year (or a total of 6 hours per year).
- Training using the Fire Training Academy facilities can count in more than area at a time. Example: A three-hour multi-company nighttime evolution can count toward three hours of drill, three hours of multi-company drill and three hours of nighttime drill.
- Training counted toward use of the Fire Training Academy facilities does not count toward other training areas.

Company Based Training

- 20 hours per month (or a total of 240 hours per year).
- Training counted toward company based training does not count toward other training areas.

Hazardous Materials Training

- 3 hours per year.
- Training counted toward hazardous materials training does not count toward other training areas.

Driver/Operator Training

- Every qualified driver needs 4 – ½ day drills of driver, pump operator and aerial operator training per year (or a total of 12 hours per year).
- Training time only counts for the actual operator of the vehicle during practical drills. Example: A company conducts a two-hour drill on pumping handlines. If the same person operates the pump, then the operator is credited with two hours toward driver-operator training. If the crew rotates through the pump operator position, then the hours are divided by the operators for credit toward driver/operator training.
- Training counted toward driver/operator training does not count toward other training areas.

Officer Training

- Every fire officer needs two days of officer or management training per year (or a total of 12 hours per year).
- Training counted toward officer training does not count toward other training areas.

The Fire Department can meet the ISO training requirements by modifying the departmental training objectives. Most of the training is currently being delivered throughout the department, including nighttime evolutions. Changing the location training is conducted and better documentation of training through drill reporting and Training Academy records will make significant progress to meet the ISO training requirements without any financial impact.

Training sessions are routinely held at Fire Station 208 for west end companies. ISO does not recognize these training sessions toward use of the Training Academy facilities; therefore, the employees working on the west end are deficient in the Training Academy facilities usage requirements. Relocating these

training sessions to the Training Academy will provide more opportunities of all employees to meet the Training Academy facility usage requirements.

Improvements to the drill reporting section of FIRES could provide the necessary means for tracking the departmental training objectives. These records can be used to provide monthly reports for fire suppression supervisors to monitor their employee's progress to meeting the training objectives. The Training Academy staff currently is unable to retrieve data from the drill reports. Access to these records can be arranged by working with the Fire Department IT Specialists. A secondary issue related to drill reporting is ensuring the company officers enter drill reports on a daily basis.

A further review of annual training requirements identified additional annual training sessions that every fire suppression employee is required to attend by various regulating agencies and consensus standards. The Fire Department currently is not in compliance with many of these training regulations. The following are training sessions required on an annual basis:

➤ **Hazardous Materials Training**

OSHA requires emergency responders of an emergency response organization to be properly trained based on the duties and function they will perform. These employees shall receive annual refresher training of sufficient content and duration to maintain their competencies. NFPA requires an annual review of the department's hazardous materials emergency plan and an annual exercise to evaluate the plan.

Hazardous Waste Operations and Emergency Response – 29CFR1910.120(q)

Recommended Practices for responding to Hazardous Materials Incidents, 2002 – NFPA 471(4.2)

➤ **SCBA and Respirator Training**

OSHA and NFPA requires employees required to use respirators be properly trained in why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator; the limitations and capabilities of the respirator; emergency procedures for the respirator; inspection, donning, and doffing of the respirator; maintenance and storage procedures for the respirator; and medical signs and symptoms that may limit or prevent the effective use of the respirator. The training shall be repeated annually and shall cover each type of respirator used (SCBA, N95, filter cartridges, etc.).

Respiratory Protection – 29CFR1910.134(k)

Standard for Fire Service Respiratory Protection Training, 2002 – NFPA 1404(6.1)

➤ **Technical Rescue Training**

NFPA requires emergency responders to technical rescue incidents to be training at a minimum of the awareness level for various potential incidents including: structural collapse, rope rescue, confined space rescue, vehicle and machinery extrication, trench and excavation rescue, and water rescue. Members of technical rescue teams are required additional training at the operations or technician levels. Continuing education shall be provided annually for all emergency responders to maintain operational capabilities.

Standard on Operations and Training for Technical Rescue Incidents, 1999 – NFPA 1670(2-1.6)

➤ **Infection Control Procedures**

OSHA requires all employees with occupational exposure to bloodborne pathogens be trained on the exposure control plan at the time of initial assignment, whenever changes are made to the plan, and annually (within one year of their previous training). This training should cover the OSHA regulation, epidemiology and symptoms of bloodborne diseases, modes of transmission, explanation of the exposure control plan, recognition of tasks that may involve exposure, personal protective equipment (types, selection, proper use, location, removal, handling, decontamination,

and disposal), information on hepatitis B vaccine, action to take if an employee contacts blood or other potentially infectious materials, reporting and follow-up procedures for exposure, post-exposure medical evaluations, explanation of biological signs and labels, and an opportunity to ask questions. This trainer is required to be knowledgeable in bloodborne pathogens and how it related to the workplace. Airborne diseases, such as tuberculosis and SARS, are part of infection control and annual training is required under the respiratory protection standard for SCBA and respirators. Bloodborne and airborne infection control measure should be covered in the same training session. NFPA requires annual training covering the department's infection control plan. *Bloodborne Pathogens – 29CFR1910.1030(g)(2)*
Standard on Fire Department Infection Control, 1999 Edition – NFPA 1581(2-3)

These mandatory training sessions are required for all fire suppression employees on an annual basis. The training sessions can be delivered to all employees while on duty, which reduces the financial impact of delivering these training sessions. Instructors for these classes may need to be brought back on overtime to deliver the training by qualified instructors. The maximum financial impact for instructing these classes is estimated at \$3,360 per year (assuming there are four classes, at eight hours per class, delivered to three shifts, at \$35 per hour in overtime). The fire and rescue classes count toward the ISO training objective.

The directive covering in-service training, *Directive 1.702 – In-Service Training (April 18, 1988)*, does not reflect current in-service training efforts and needs updating to reflect these in-service training efforts and training objectives. The mandatory training sessions should be included as training objectives for monitoring employee and company skills.

RECOMMENDATIONS

The in-service training objectives for fire suppression employees should be revised to encompass all of the required training. The training objectives should be based on each employee being compliant with the various training objectives and supervisors should be accountable to ensure the training objectives are met. The mandatory training sessions need to be delivered to ensure compliance with various laws.

The key to compliance is documenting the training sessions. All training sessions held at the Training Academy, including company drills, need to be documented on a Training Attendance Roster and entered into the drill reporting section of FIRES. All company level drills need to be documented and entered into the drill reporting section of FIRES. The Training Academy should prepare a monthly report for each supervisor that details the progress of each employee. Any employee assigned to light duty assignment or on light duty assignment would be exempted from the reporting requirements for the affected month, but will be required to attend all training sessions mandated by statutory agencies.

A draft Fire Department SOP for In-Service Training is attached for consideration to address these training objectives and records management to document all training sessions. The SOP was written to cover only fire suppression specifically to enable implementing these objectives on January 1, 2004, which will provide a full calendar year of training records for a pending review by ISO.